Motion

- If you want to understand how an object (like a car, ball, person, or rocket) moves, you have to understand three things about what it means "to be moving."
- These three things are:
- Position. This is precisely where an object is located.
- Speed. Precisely how fast an object is moving.
- Acceleration. Precisely how fast an object's speed is changing.

Significant Digits

- When we measure and calculate values, we can only use a number of digits in our answer that has been accurately measured.
- "certain plus one"

Rules for counting Sig Figs:

- KNOW THIS!
- All digits included in a stated value from 1-9 are significant example: 132.23 has 5 sig figs
- leading zeros, are not significant, example: 0.0034 has only 2 sig figs
- Lagging zeros count when they are after a decimal, example: 3000 has 1 sig fig, 2.000 has 4.
- How many sig figs?

.57

	1.25 cm	3
	123.7 mph	4
*	30.09 m/s	4
	0.57 km	2
*	0.045 m	2

leading

~~0~~ 3 0 0 9 ~~0 0~~

Rounding Numbers

- If the digit after the digit to be rounded is 5 or larger, round up. If not leave the number as is.

6/9

0.66666

0.67 x 100 = 67

0.6448

0.64

Example:

- 9.147 cm rounded to three Sig. Digits is 9.15 cm.
- 7.23 g rounded to two Sig. Digits is 7.2 g.

Rounding Ex:

Try:

- 0.0327 rounded to two s.d.
- 15.430 rounded to three s.d

The Certainty Rule for Multiplying & Dividing

- If you're multiplying two 4 digit numbers your answer will produce a seven or eight digit answer. How do we know how many significant digits to include?
- Follow this rule:
- When multiplying and/or dividing, the answer has the same number of significant digits as the measurement with the fewest number of significant digits.

3.2 cm X 10.1 cm = 32.32 cm

= 32 cm^2

2 sig figs

least number of sig figs when multiplying (or dividing)

The Precision Rule for Adding and Subtracting

- The answer of an addition or a subtraction should be rounded off to the least precise value involved. (the measurement with the fewest decimal places).

add/subtract least number of places past the decimal

e.g. 107.0 cm
+32.18 cm
139.18 cm (math answer)
139.2 cm

(answer has only one decimal place because 107.0 cm has only 1 decimal place and is the least precise)

Activity- pass in at the end of class 1/19

Measure the length and the width of your counter with a meter stick. Record the length and width to the proper number of significant digits.

Calculate the area using the formula

A= length x width

Record the answer in square cm using the proper number of significant digits.

Details: Put both of your names on your piece of looseleaf. Record

l=_____cm

w=_____cm

A= l x w and show all work